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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/748,223
Filing Date: December 31, 2003
Appellant(s): HOU, CHENG-LIANG

Kamran Emdadi
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 10/20/2008 appealing from the Office action mailed 7/3/2008.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6014384	WEBERHOFER	01-2000
2006/0159019	BUSKIRK ET AL.	07-2006
7130917	ZHANG ET AL.	10-2006

Specification, paragraph 0003.

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

A. **Claims 1-6, 9-16, and 19** are rejected under 35 U.S.C. 102(e) as being anticipated by Buskirk (US 2006/0159019 A1).

Please note that since Buskirk's application 11/231,297 has not been examined, the referencing of claims 104, 105, 106, 108, 110, and 113 of Buskirk in the rejection of claims 1, 2, 3, 4, 6, 9, 10, 11, 12, 13, 14, 16, and 19 is removed.

Regarding **claims 1, 10, and 11**, Buskirk teaches a method, comprising:

Setting a plurality of packet type filters so that each of said packet type filters performs filtering for a different packet type (a classifier 402 in Fig. 4, paragraphs 0030-0031, 0055 and 0058).

Incrementing a plurality of buckets, each bucket communicatively coupled to a packet type filter of the plurality of filters (policing engine 700 in Fig. 7 having leaky buckets for corresponding flows, paragraphs 0070-0075).

Receiving a packet having a packet type (ingress processing system 400 in Fig. 4 receiving a packet belonging to a flow with a particular protocol, paragraphs 0051, 0058, 0074 and Fig. 8).

Measuring the bucket that is coupled to the packet type filter that filters for the receive packet type (a packet handling engine reads on processor 724 in the policing engine 700,Fig. 7 and the traffic shaper, collectively; processor 724 measures the flows, paragraphs 0070, 0074, 0078, and Fig. 8).

Transmitting the packet if its measured bucket is above a threshold value (a packet handling engine reads on processor 724 in the policing engine 700,Fig. 7 and the traffic shaper, collectively; the traffic shaper forward conforming packet, paragraphs 0070, 0074, 0076-0078, and Fig. 8).

Regarding **claims 2 and 12**, Buskirk teaches dropping the packet if the measure bucket is below a threshold value (the traffic shaper drops nonconforming packet, steps 808 and 810 in Fig. 8, paragraphs 0072, 0076-0078).

Regarding **claims 3 and 13**, Buskirk teaches decrementing the measured bucket if the packet is transmitted (paragraphs 0079-0081, Fig. 9).

Regarding **claims 4 and 14**, Buskirk teaches decrementing decrements the measured bucket by a length of the transmitted packet (paragraphs 0075 and 0081).

Regarding **claims 5 and 15**, Buskirk also teaches that the decrementing decrements the measured bucket by a token (current tokens are subtracted by "fare" tokens being charged for packet admission, Fig. 11b and paragraphs 0090, and 0098-0099).

Regarding **claims 6 and 16**, Buskirk also teaches that the buckets are each incremented at different rates (paragraphs 0078 and 0080-0081).

Regarding **claims 9 and 19**, Buskirk also teaches a first packet type includes packets having a first QOS level and a second packet type includes packets having a second QOS level (paragraphs 0058 and 0078).

B. **Claims 7-8 and 17-18** are rejected under 35 U.S.C. 103(a) as being unpatentable over Buskirk (US 2006/0159019 A1).

Regarding **claims 7 and 17**, Buskirk fails to explicitly teach that a maximum value for each bucket is different.

However, Buskirk teaches that each flow has different QoS level (paragraph 0058). An official notice is taken that it is well known in the art to apply a different maximum value to each

buffer or queue in order to provide different QoS levels (such delays and processing time) to a plurality of buffers/queues.

Therefore, it would have been obvious to one skilled in the art at the time of the invention to further modify the teaching of Buskirk by applying a different maximum value to each bucket in order to provide different QoS levels (such delays and processing time) to a plurality of buckets.

Regarding **claims 8 and 18**, although Buskirk teaches that a first packet type is FAST packet and a second packet type is IP (paragraph 0058) and other types of protocols can be applied (paragraph 0077), Buskirk does not explicitly teach that the first packet type includes unicast and the second packet type includes multicast and broadcast.

However, an official notice is taken that it is well known in the art that there are two main types of communication, i.e., point-to-point which includes unicast and point-to-multipoint which includes multicast and broadcast.

Therefore, it would have been obvious to one skilled in the art at the time of the invention to modify the teaching of Buskirk such that the first packet type would include unicast and the second packet type would include multicast and broadcast in order to enable both point-to-point and point-to-multipoint packets to be classified, stored, and serviced separately according to their type of communication.

C. **Claims 1-3, 6-13, and 16-19** are rejected under 35 U.S.C. 103(a) as being unpatentable over Weberhofer (US 6,014,384) in view of the admitted prior art (the specification, paragraph 0003).

Regarding claims 1, 10, and 11, as shown in Fig. 2, Weberhofer teaches a system, comprising:

A packet receiving engine (a data input point 16), for receiving packets of at least a first type and a second type (a first and second types read on a number of QoS classes such as CBR and UBR). See col. 4, lines 10-33, 37-45.

A plurality of buckets (a number of leaky-bucket systems, each bucket per QoS class), each communicatively coupled to the packet receiving engine (a number of leaky-bucket systems are connected to a data input point 16 via an access port), each communicatively coupled to a packet type filter of plurality of packet type filters (a mapper 18 and queues 19.1-19.4, collectively, constitute a plurality of packet type filters because cells with different QoS are classified into corresponding queues, which means the mapper 18 must have a plurality of different means/elements for classifying the received cells, and that each means/element, whether it is hardware or software, is dedicated to identifying a corresponding one of the QoS classes and assign it to an ATM cell), each packet type filter is set to filter at least one packet type. See col. 4, lines 45-53, 65-col. 5, lines 1-10, 17-26.

A bucket updating engine (counters for the leaky-bucket systems for QoS classes, collectively), communicatively coupled to the packet receiving engine (a data input point 16), for incrementing a first bucket and a second bucket. See col. 5, lines 17-22.

In addition, Weberhofer teaches that each packet type filter filters the type of packet received (a mapper 18 and queues 19.1-19.4, collectively, determine and assign the QoS class for each received ATM cell and store each assigned QoS ATM cell in a corresponding QoS queue).

However, Weberhofer fails to explicitly teach a packet handling engine, communicatively coupled to the packet receiving engine, for measuring the bucket coupled to the packet type filter that filters for the type of packet received and for transmitting the received packet if the measured bucket is above a threshold value as recited in the claim.

The admitted prior art teaches a leaky bucket in which if the bucket level is above a threshold level, a packet would be transmitted and the bucket would be decremented, therefore, it is inherent that a packet handling engine for measuring the bucket and for transmitting a received packet if the measured bucket is above a threshold value must be included. See the specification, paragraph 0003.

Therefore, it would have been obvious to one skilled in the art at the time of the invention to modify the teaching of Weberhofer to include a packet handling engine for measuring a bucket and for transmitting a received packet if the measured bucket is above a threshold value of the admitted prior art such that the packet handling engine, communicatively coupled to the packet receiving engine, for measuring the bucket coupled to the packet type filter that filters for the type of packet received and for transmitting the received packet if the measured bucket is

above a threshold value would be included as recited in the claim. The suggestion/motivation to do so would have been to perform a flow control on packet transmission for each bucket.

Regarding **claims 2 and 12**, Weberhofer does not teach that the packet handling engine is for dropping the packet if its measure bucket is below a threshold value.

However, the admitted prior art teaches dropping a packet if the bucket level falls below a threshold value (the specification, paragraph 0003).

Given the teaching of the admitted prior art, it would have been obvious to one skilled in the art at the time of the invention to modify the teaching of Weberhofer such that the packet handling engine would drop the packet if its measure bucket is below a threshold value as recited in the claim. The suggestion/motivation to do so would have been to provide a corrective action/flow control when a high usage/congestion level occurs.

Regarding **claims 3 and 13**, although Weberhofer teaches the bucket updating engine (counters for the leaky-bucket systems for QoS classes, collectively, see col. 5, lines 17-22), Weberhofer does not teach that the bucket updating engine is for decrementing the measured bucket if the packet is transmitted.

However, the admitted prior art teaches decrementing the measured bucket if the packet is transmitted (the specification, paragraph 0003).

Given the teaching of the admitted prior art, it would have been obvious to one skilled in the art at the time of the invention to modify the teaching of Weberhofer such that the bucket updating engine would decrement the measured bucket if the packet is transmitted. The suggestion/motivation to do so would have been to reflect the current bucket level following a packet transmission.

Regarding **claims 6 and 16**, because Weberhofer teaches that high-level QoS classes can be granted an absolute priority over those of lesser value (col. 2, lines 31-46), therefore, it is inherent that the bucket updating engine must increments each bucket at different rates.

Regarding **claims 7 and 17**, the combined teaching of Weberhofer and the admitted prior art does not explicitly teach that a maximum value for each bucket is different. However, it would have been obvious to one skilled in the art at the time of the invention to modify the combined teaching of Weberhofer and the admitted prior art such that a maximum value for each bucket would be different. The motivation/suggestion to do so would have been to provide different bucket maximum level/capacity to each bucket according to its QoS level and such modification of varying the maximum value of each bucket involves only routine skill in the art.

Regarding **claims 8 and 18**, although Weberhofer teaches that the first packet type is CBR and the second packet type is UBR, the combined teaching of Weberhofer and the admitted

prior art does not explicitly teach that the first packet type includes unicast and the second packet type includes multicast and broadcast.

However, an official notice is taken that it is well known in the art that there are two main types of communication, i.e., point-to-point which includes unicast and point-to-multipoint which includes multicast and broadcast, and that CBR may include unicast cells and that UBR may include multicast and broadcast cells.

Therefore, it would have been obvious to one skilled in the art at the time of the invention to modify the combined teaching of Weberhofer and the admitted prior art such that the first packet type would include unicast and the second packet type would include multicast and broadcast in order to enable both point-to-point and point-to-multipoint packets to be classified, stored, and serviced separately according to their type of communication.

Regarding **claims 9 and 19**, Weberhofer teaches that the first packet type includes packets having a first QoS level (CBR) and the second packet type includes packets having a second QoS level (UBR). See col. 4, lines 10-33 and col. 5, lines 46-51.

D. **Claims 4-5 and 14-15** are rejected under 35 U.S.C. 103(a) as being unpatentable over Weberhofer (US 6,014,384) in view of the admitted prior art (the specification, paragraph 0003), and further in view of Zhang (US 7,130,917 B2).

Regarding **claims 4-5 and 14-15**, the combined teaching of Weberhofer and the admitted prior art does not teach that the bucket updating engine decrements the measured bucket by a length of the transmitted packet/a token.

However, Zhang teaches decrementing a measure bucket by a length of the transmitted packet/a token (the packet is transmitted if the token bucket has enough tokens, (>= L) and the number of tokens in the bucket will be updated accordingly, i.e., update token bucket: token# = token# - L, col. 4, lines 38-55, therefore, L, which is the packet length, must include one token).

Given the teaching of Zhang, it would have been obvious to one skilled in the art at the time of the invention to modify the combined teaching of Weberhofer and the admitted prior art such that the bucket updating engine would decrement the measured bucket by a length of the transmitted packet/a token as recited in the claims. The suggestion/motivation to do so would have been to update the current bucket level after packet transmission as taught by Zhang (col. 4, lines 38-43).

(10) Response to Argument

Appellant's arguments in the Brief filed on 10/20/2008 have been fully considered but they are not persuasive.

A. In the Brief on pages 11-12 regarding claim 1, 10, and 11, the Appellant argues that the classifier 402 in Fig. 4 of Buskirk is a single unit that is used to classify packets into a variety of

different "flows" or "connections," therefore Buskirk does not read on having a plurality of packet type filters nor setting a plurality of packet type so that each of the packet type filters performs filtering for a different packet type as recited in claim 1.

In response, the Examiner respectfully disagrees. It is respectfully submitted that the classifier 402 of Buskirk reads on a plurality of packet type filters and that Buskirk teaches setting or configuring a plurality of packet type so that each of the packet type filters performs filtering for a different packet type. In particular, Buskirk teaches that the classifier 402 in Fig. 4 classifies/parses the incoming stream into separate logical flows (paragraph 0055) and that each flow is based on the packet type (paragraph 0058). Since more than one packet type is present and classified, the classifer 402 must have a number of different means/elements, which correspond to the claimed "plurality of packet type filters", that classify different packet types because each of the means/elements, whether it is hardware or software, must be dedicated to classifying a packet into one of the packet types. For example, since Buskirk teaches monitoring the packet header for packet type classification and packet types include IP packet and FAST packet (paragraph 0058), when a packet arrives at the classifier 402, the packet header would be checked and verified whether it meets or satisfies an IP packet conditions/requirements or a FAST packet conditions/requirements. The hardware component such as logic or gate, or software code of the classifier 402 that verifies the arrived packet against the conditions/requirements for an IP packet and classifies the packet as an IP packet constitutes a packet type filter. Similarly, the hardware component such as logic or gate, or software code of the classifier 402 that verifies the arrived packet against the conditions/requirements for a FAST packet and classifies the packet as a FAST packet constitutes another packet type filter.

In addition, note that MPEP 2112 supports rejection of claims under 35 U.S.C. 102 based on inherency and the classification operation of Buskirk, i.e., classifying a packet based on the packet type, is consistent with the "filter" operation as disclosed in line 9 of paragraph 0020 of the specification as "a packet has been filtered, e.g., determined to be of a certain type." Therefore, based on the above explanations, it is respectfully submitted that the limitations of "a plurality of type filters" and "setting a plurality of type filters so that each of said packet type filters performs filtering for a different packet type" is fully met.

B. In the Brief on pages 23-25 regarding claim 1, 10, and 11, the Appellant argues that the mapper 18 of Weberhofer, which is a single entity that determines which QoS class a cell/packet belongs to, is not a plurality of different packet type filters. Therefore Buskirk does not teach a plurality of packet type filters nor setting a plurality of packet type so that each of the packet type filters performs filtering for a different packet type as recited in claim 1.

In response, the Examiner respectfully disagrees. It is respectfully submits that Buskirk does teach a plurality of packet type filters nor setting a plurality of packet type so that each of the packet type filters performs filtering for a different packet type as recited in claim 1. In particular, Fig. 2 of Weberhofer clearly shows different branches are connected from mapper 18 to queues 19.1-19.4 and Weberhofer further teaches that "*The ATM cells to be transmitted are first identified using a mapper 18. This mapper determines which QoS class a cell belongs to, and directs it to the proper queue 19.1 through 19.4. ATM cells of higher transmission priority are thus separated from those of lower transmission priority*" (emphasis added, col. 4, lines 45-50).

Therefore, since different ATM cells are classified into different QoS classes by the mapper 18 and input into corresponding QoS queues (col. 4, lines 11-33 and col. 5, lines 3-10), the mapper must have a number of different means/elements that classify/identify different QoS classes and that each means/element, whether it is hardware or software, must be dedicated to identifying one of the QoS classes and assigning it to an ATM cell. For example, assuming queue 19.1 is assigned to a CBR QoS class and queue 19.2 is assigned to a UBR QoS class. There must be a CBR means/element within the mapper 18 that is responsible for identifying which cells belong to a CBR class and forwarding them to queue 19.1 and an UBR means/element, also within the mapper 18, that is responsible for identifying which cells belong to the UBR class and forwarding them to queue 19.2 in order for the CBR cells and UBR cells to be classified and properly forwarded to the corresponding queues.

Thus, the respective classifying means/elements for different QoS classes of the mapper 18 and queues 19.1-19.4 constitute a plurality of packet type filters in which each of the packet type filters performs filtering for a different packet type as claimed. In addition, MPEP 2112 supports rejection of claims under 35 U.S.C. 102 based on inherency and the classification operation of Weberhofer, i.e., classifying a cell based on the packet type, is consistent with the "filter" operation as disclosed in line 9 of paragraph 0020 of the specification as "a packet has been filtered, e.g., determined to be of a certain type." Therefore, it is respectfully submitted that the limitations of "a plurality of type filters" and "setting a plurality of type filters so that each of said packet type filters performs filtering for a different packet type" is fully met.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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Examiner, Art Unit 2416
1/15/2009

Conferees:

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1/21/09

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